

## ABSTRACT

Disclosed is a bandwidth allocation method for an optical line termination (OLT) in a Gigabit Ethernet passive optical network (GE-PON) having one OLT and a plurality of optical network units (ONUs) connected to the OLT. The method includes

5 the steps of transmitting a registration request grant message for granting an opportunity for transmitting a registration request signal from the OLT to the ONUs; determining the number of ONUs that transmitted registration request messages in response to the registration request grant message; and segmenting a single time slot into a plurality of minislots, segmenting a partial bandwidth of each of the segmented minislots so as to

10 accommodate the ONUs, and allocating the segmented bandwidths to the ONUs that transmitted the registration request messages as voice bands.